AMENDMENTS TO THE CLAIMS

1-84 (Canceled)

85. (Previously presented) An apparatus for detecting bruxism and providing feedback to a user, said apparatus comprising:

a sensor system operable in a set-up mode to sense muscular activity of the jaw and to measure a first level of muscular activity associated with a level of biting force and to generate a first signal corresponding thereto; and to measure a second level of muscular activity associated with normally occurring jaw activity and to generate a second signal corresponding thereto; said sensor system being further operable in a use mode to measure the muscular activity of the jaw and generate a third signal corresponding thereto;

a signal processor which is in communication with said sensor system and which is operable to receive said first and second signals and calculate a threshold level of muscular activity of the jaw which is less than 100% of the first level of muscular activity as measured by the sensor system, but more than the second level of muscular activity as measured by the sensor system; and

a feedback signal generator which is in communication with said signal processor and said sensor system, said feedback signal generator being operable to receive said third signal and generate a feedback signal if said sensor system is operating in said use mode and if the level of muscular activity measured thereby exceeds the threshold level of muscular activity calculated by said signal processor.

86. (Previously presented) The apparatus of claim 85, wherein said signal processor is operable to calculate a threshold level of muscular activity which is in the range of 3-20% of the first level of measured activity.

87. (Previously presented) The apparatus of claim 85, wherein said sensor system is operable in said set-up mode to measure a first level of muscular activity which is associated with a maximum level of biting force.

88. (Previously presented) The apparatus of claim 85, wherein said sensor system is operable in said set-up mode to measure a second level of muscular activity which is associated with a grimace.

89. (Previously presented) The apparatus of claim 85, wherein said feedback signal generator is operable to generate said feedback signal only if said measured level of muscular activity exceeds said threshold for a predetermined period of time.

90. (Previously presented) The apparatus claim 85, wherein said feedback signal generator includes a control system for controlling the duration and/or intensity of said feedback signal.

91. (Previously presented) The apparatus of claim 85, wherein said sensor system is operable to detect EMG signals.

92. (Previously presented) The apparatus of claim 85, wherein said sensor system is operable to detect acoustic signals.

93. (Previously presented) The apparatus of claim 85, wherein said apparatus is operable to store data derived from said sensor system and/or said signal processor and/or said feedback signal generator.

94. (Previously presented) The apparatus of claim 93, further including a computer and a system for transferring said stored data thereto.

95. (Previously presented) The apparatus of claim 85, further comprising a user module configured to be worn on a user's head.

96. (Previously presented) The apparatus of claim 85, further comprising a slave module and a master module, said slave module being configured to be worn by a human being.

97. (Previously presented) The apparatus of claim 85, further comprising a display device operable to display information and/or results derived from said sensor system and/or said signal processor and/or said threshold signal generator.

98. (Previously presented) The apparatus of claim 85, wherein said signal processor is further operable to perform pattern recognition.

99. (Currently amended) The apparatus of claim 85, wherein said apparatus is operable to store said threshold level of muscular activity in an associated, non-transitory memory.

100. (Previously presented) The apparatus of claim 85, wherein said signal processor is operable to perform a Fast Fourier Transform analysis of signals from the sensor system.

101. (Previously presented) The apparatus of claim 85, wherein said apparatus is configured to perform frequency pattern recognition of signals from said sensor system.

102. (Previously presented) The apparatus of claim 85, wherein said signal processor is operable to determine the amplitude of the frequency content of signals from said sensor system.

103. (Previously presented) The apparatus of claim 85, wherein said signal processor is operable to carry out low pass filtering of signals from said sensor system so as to filter out noise and unusable signals.

104. (Previously presented) The apparatus of claim 85, wherein said signal processor is operable to average and/or rectify signals from said sensor system.

105. (Previously presented) The apparatus of claim 85, wherein said apparatus is operable to accumulate data and determine and store frequency patterns corresponding to muscular activity and relating to bruxism.

106. (Previously presented) The apparatus of claim 101, wherein said frequency pattern recognition comprises comparing the frequency content of said signals to stored frequency patterns of muscular activity relating to bruxism.

107. (Previously presented) The apparatus of claim 101, wherein said frequency pattern recognition includes comparing one or more harmonic frequencies of said signals to the stored frequency pattern of muscle activity.

108. (Previously presented) The apparatus of claim 107, wherein a first harmonic frequency and/or a second and third harmonic frequencies of said one or more harmonic frequencies are compared to the stored frequency pattern of the muscle activity relating to bruxism.

109. (Previously presented) A method for detecting bruxism and providing feedback to a user, said method comprising the steps of:

providing a sensor system which is operable in a set-up mode to sense muscular activity of the jaw and to measure a first level of muscular activity associated with a level of biting force and generate a first signal corresponding thereto, and to measure a second level of muscular activity associated with normally occurring jaw activity, and to generate a second signal corresponding thereto, said sensor system being further operable in a use mode to measure the muscular activity of the jaw and generate a third signal corresponding thereto;

providing a signal processor which is in communication with said sensor system and which is operable to receive said first and second signals and to calculate a threshold level of muscular activity of the jaw which is less than 100% of the first level of measured activity, but more than the second level of measured activity;

providing a feedback signal generator which is in communication with said signal processor and said sensor system, said feedback signal generator being operable to generate a feedback signal if said sensor system is operating in said use mode and if the level of muscular activity measured thereby exceeds a threshold level of muscular activity as calculated by said signal processor;

operating said sensor system so as to generate said first signal, said second signal, and/or said third signal; and

if said feedback signal generator generates a feedback signal, communicating said feedback signal to said user.

110. (Previously presented) The method of claim 109, wherein said sensor system is operable in said set-up mode to measure a first level of muscular activity which is associated with a maximum level of biting force.

111. (Previously presented) The method of claim 110, wherein said sensor system is operable in said set-up mode to measure a second level of muscular activity which is associated with a grimace.